

CLAIM AMENDMENTS

1. (currently amended) A process for lubricating a sump lubricated, compression ignited internal combustion engine, comprising supplying thereto a low-sulfur, low-phosphorus lubricant comprising:

- (a) an oil of lubricating viscosity;
- (b) a substantially nitrogen-free sulfurized olefin antiwear agent in an amount sufficient to provide improved antiwear performance to the composition; and
- (c) about 1 to about 10 percent by weight of a nitrogen-containing dispersant; said lubricant formulation containing less than about 0.1 percent by weight phosphorus, less than about 0.4 percent by weight sulfur, and having 0.6% to less than about 1.2% sulfated ash.

2. (original) The process of claim 1 wherein the lubricant further comprises an overbased detergent.

3. (original) The process of claim 2 wherein the overbased detergent is selected from the group consisting of salixarates, saligenins, salicylates, glyoxylates, and mixtures thereof.

4. (original) The process of claim 1 wherein the engine is a heavy-duty diesel engine.

5. (currently amended) A low-sulfur, low-phosphorus composition suitable for lubricating a compression ignited internal combustion engine, comprising:

- (a) an oil of lubricating viscosity;
- (b) a substantially nitrogen-free sulfurized olefin antiwear agent, in an amount sufficient to provide improved antiwear performance to the composition;
- (c) about 1 to about 10 percent by weight of a nitrogen-containing dispersant; and
- (d) an overbased detergent selected from the group consisting of salixarates, saligenins, salicylates, glyoxylates, and mixtures thereof; said composition containing less than about 0.1 percent by weight phosphorus, less than about 0.4 percent by weight sulfur, and having 0.6% to less than about 1.2% sulfated ash.

6. (original) The composition of claim 5 wherein the sulfurized olefin antiwear agent is selected from the group consisting of sulfurized C₄ to C₄₀ olefins, sulfurized vegetable oils, sulfurized lard oil, sulfurized cyclohexene compounds bearing ester substituents, and mixtures thereof

7. (original) The composition of claim 5 wherein the nitrogen-containing dispersant comprises a succinimide dispersant.

8. (original) The composition of claim 5 further comprising a zinc dialkyldithiophosphate, wherein the amount of zinc dialkyldithiophosphate is about 0.2 to about 1.2 percent by weight.

9. (currently amended) The composition of claim 8 wherein the alkyl groups of the zinc dialkyldithiophosphate are at least about 50% [[of]] secondary alkyl groups.

10. (original) The composition of claim 5 further comprising about 0.2 to about 6 percent by weight of an aromatic amine antioxidant or a hindered phenol antioxidant or a mixture thereof.

11. (original) The composition of claim 10 wherein the antioxidant comprises a hindered ester-substituted phenol antioxidant.

12. (original) The composition of claim 5 wherein the amount of component (b) is about 0.05 to about 1.5 percent by weight.

13. (original) The composition of claim 5 wherein the amount of component (d) is about 0.1 to about 3 weight percent.

14. (original) The composition of claim 5 wherein the composition contains less than about 0.06 percent by weight phosphorus.

15. (original) The composition prepared by combining the components of claim 1.

16. (original) A concentrate comprising:

(a) about 20 to about 60 percent by weight of an oil of lubricating viscosity;

(b) about 0.5 to about 15 percent by weight of a substantially nitrogen-free sulfurized olefin antiwear agent;

(c) about 1 to about 40 percent by weight of a nitrogen-containing dispersant; and

(d) an overbased detergent selected from the group consisting of salixarates, saligenins, salicylates, glyoxylates, and mixtures thereof;

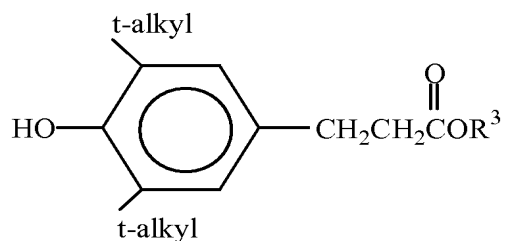
said concentrate containing less than about 1.2 percent by weight phosphorus, less than about 5 percent by weight sulfur, and having less than about 15% sulfated ash.

17. (new) The process of claim 1 wherein the lubricant formulation has 0.8% to less than about 1.2% sulfated ash.

18. (new) The process of claim 1 wherein the lubricant formulation has 0.8% to less than about 1.2% sulfated ash and less than 0.09 percent by weight phosphorus.

19. (new) The composition of claim 5 wherein the composition has 0.8% to less than about 1.2% sulfated ash.

20 (new) The composition of claim 11 wherein the hindered ester-substituted phenol antioxidant is represented by the structure



wherein R³ is a straight chain or branched chain alkyl group containing 2 to 22 carbon atoms.